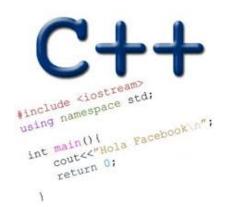# FILE IO

Problem Solving with Computers-I

I/O in programs

Different ways of reading data into programs

- Standard input (stdin) using cin
- Command line arguments (int main(int argc, char* argv[])
- Read from file

Ways to output data

- Standard output: cout
- Standard error: cerr
- Write to file

Writing to files

```
#include <fstream>
ofstream ofs;   // Create a ifstream object
ofs.open("animals.txt"); //Open a file to write to
ofs<<"Duck\n"<<"Cat\n"<<"Cow\n";
```

Reading from files

- `Open a file`
- `If open fails, exit`
- `In a loop`
  - `Read a line`
  - `If you reach the end of file, break`
  - `Else process the line that was read`
- `Close the file`

Reading from files

```
#include <fstream>
ifstream ifs;   // Create a ifstream object
ifs.open("numbers.txt"); //Open a file to read
if(!ifs){
     // open failed
}
getline(ifs, line); // read a line from the file into a
                    // string line.
                    // If you attempt to read past the end
                    // of file, ifs change to false

// If the file was empty, ifs will be false at this point
ifs.close()
```

FILE IO: Which of the following is correct?

A.
```
while(1){
        getline(ifs, line);
        if (!ifs)
            break;
        cout<<line<<endl;
}
```

B.
```
while(ifs){
        getline(ifs, line);
        cout<<line<<endl;
}
```

C. Both A and B are correct

D. Neither is correct

Next time

- Test driven development
- Makefiles